

ATTENTION was directed in NATURE for April 3 to a memoir by Prof. Yoshiwara on the geology of the Japanese islands which form the "Riukiu Curve." We have since received a report on the fossils of these islands and of Formosa, by Mr. R. B. Newton and Mr. R. Holland (*Journ. Coll. Science, Tokyo, Japan*, vol. xvii. 1902). The specimens comprise many examples of Orbitoides and other foraminifera, together with one or two species of Cellepora and one nullipore. They occur in the Orbitoidal-limestone of Miocene age, and in the raised coral-reef formations which belong to some part of the post-Pliocene series.

A SECOND and enlarged edition of the "Hand-List of Herbaceous Plants" cultivated in the Royal Botanic Gardens at Kew has been issued. In the preface it is pointed out that no substitute for the "Students' Garden"—the site of which was required for the new wing of the herbarium—is contemplated, more especially since the Botanic Gardens at Chelsea have been reconstituted under the auspices of the Charity Commissioners to serve a similar purpose. A new feature in this edition is a reference to works in which figures of the species may be found.

OF the various subjects reviewed by Mr. J. H. Maiden in his presidential address to the Linnean Society of New South Wales, the forestry question and a botanical survey of the country are topics on which the opinion expressed is that of an indefatigable worker and a practical expert. In connection with the State management of forests, Mr. Maiden directs attention to the importance of conserving areas which are not suited to agriculture, and to the necessity for planting trees to check the sand-drifts and to provide shade on the arid western plains. The object of the botanical survey would be to summarise existing records and extend them. In order to institute a survey which shall be carried on by independent workers, the delimitation of the country into areas, whether known as *domaines* or *counties*, is essential; otherwise a definite basis for concerted action is wanting. A tentative scheme of botanical counties is outlined in a chart which accompanies the paper.

WE have received two papers dealing with insects harmful to agriculture, horticulture, &c., the one, by Mr. G. H. Carpenter, on injurious insects observed in Ireland in 1901 (*Economic Proceedings of the Royal Dublin Society*, vol. i. part 3, No. 5), the other by Signor A. Berlese, entitled "Importanza nella Economia Agraria degli Insetti Endofagi," published in *Bollettino* No. 4 of the Royal College of Agriculture of Portici, Sicily. In the former Mr. Carpenter states that entomologists appear to have paid scarcely any attention to the maggots of flies which infest the bodies of live sheep, and he has therefore considered it advisable to describe in some detail the life-history of the sheep-fly (*Lucilia sericata*). It is somewhat remarkable that this infestation seems to be mainly confined to Great Britain and Ireland, having been recognised on the continent only in France and Holland; in the latter case, at any rate, there is good reason to believe that it was introduced from England. The author also records the occurrence of a "plague" of black ants of the Tropical American species *Iridomyrmex humilis* near Belfast in 1900. In the second communication Signor Berlese describes, with figures, the life-history of a number of deleterious insects met with in Sicily.

THE Maidu stock of north-eastern California contains some very primitive tribes, who, in their lack of clan organisation or totemic grouping, practical absence of clothing and other negative characteristics, recall the Seri Indians of the Gulf of California as set forth in the elaborate study by Dr. W. J.

McGee (Seventh Annual Report of the Bureau of American Ethnology). Mr. Rowland B. Dixon, when on the Huntingdon California Expedition, made a large collection of Maidu myths, which he has recently published in the *Bulletin of the American Museum of Natural History* (vol. xvii. 1902, p. 33). The time has not yet come when these myths can be made to yield general conclusions, more field-work being necessary in other districts. When such material is available it will probably enable us to trace more accurately the lines of migration and the mutual relationships of the great mass of stocks scattered along the Pacific coast from the Columbia River to Mexico. These myths are beast-tales with, or without, a human element. The coyote is very prominent; he seems to be generally inimical to mankind, and appears often as a buffoon and trickster, who comes out of his adventures in a sorry plight.

GERMAN translations of Faraday's papers on experimental investigations in electricity, from the *Philosophical Transactions* of 1835 and 1838, are given in Nos. 126 and 128 of Ostwald's admirable series of scientific classics published by Mr. W. Engelmann, Leipzig. Dr. A. J. v. Oettingen is the editor of the volumes, and contributes a few remarks upon them. No. 125 of the same series, edited by Dr. F. G. Donnan, contains translations of John Mayow's papers on nitre, combustion and respiration, and No. 124 papers on thermodynamics by von Helmholtz, edited by Prof. Max Planck.

THE additions to the Zoological Society's Gardens during the past week include two Green Monkeys (*Cercopithecus callitrichus*) from West Africa, presented by Captain Hugo B. Burnaby; a Common Otter (*Lutra vulgaris*) British, presented by Mr. W. Radcliffe Saunders; a Common Seal (*Phoca vitulina*) from British Seas, presented by Mr. H. C. Rouch; three Mauge's Dasyures (*Dasyurus viverrinus*) from Australia, presented by Mr. Paris K. S. Foot; eight Rufous Tinamous (*Rhynchotus rufescens*) from Brazil, presented by Colonel Sir Thomas Hungerford Holdich; a Common Mynah (*Acridotheres tristis*) from India, presented by Mrs. Hope Robinson; a Greater Black-backed Gull (*Larus marinus*) European, presented by Mrs. V. H. Veley; a Yellow-eyed Babbler (*Pyctorhis sinensis*), two Striated Babblers (*Argya earlii*), two Himalayan Black Bulbuls (*Hypsipetes psaroides*), three Rufous-bellied Bulbuls (*Hypsipetes maclellandi*), a Verditer Flycatcher (*Stoparola melanops*) from British India, presented by Mr. E. W. Harper; a Rough-scaled Lizard (*Zonurus cordylus*), a Spotted Gecko (*Pachydactylus maculatus*) from South Africa, presented by Mr. R. Broome; six Menopomas (*Cryptobranchus alleghaniensis*), four Menobranchs (*Necturus maculatus*), a Blue Lizard (*Gerrhonotus coeruleus*), a Spiny-tailed Mastigure (*Uromastix acanthinurus*), four Horned Lizards (*Phrynosoma cornutum*) from North America, deposited; a Bennett's Wallaby (*Macropus bennetti*), three Glossy Ibises (*Plegadis falcinellus*), three Jameson's Gulls (*Larus novae-hollandiae*), a Herring Gull (*Larus argentatus*) bred in the Gardens.

OUR ASTRONOMICAL COLUMN.

THE SPECTROSCOPIC BINARY β CEPHEI.—In No. 5, vol. xv. of the *Astrophysical Journal*, Prof. Frost gives the results of his own and Mr. W. S. Adams's estimations of the radial velocity of β Cephei, reduced from ten spectrograms which these observers obtained between December 18, 1901, and May 24, 1902, with the Bruce spectrograph.

The results obtained by the two observers agree very well and indicate a radial velocity which varies from -20.3 to $+11.3$ km. It was expected that the period of variation would be found to be a long one, but two spectrograms obtained with an

interval of five and a half hours show a variation in velocity of about 14 km., or nearly half of the whole range yet observed.

DOUBLE STARS.—As an extract from the *Monthly Notices R.A.S.* for May, 1902, the Rev. T. E. Espin publishes his micrometrical measures of double stars made at the Wolsingham Observatory with a 17½-inch reflector.

The catalogue contains several records of new components, such as in $\Sigma 59$, where two new components, C and D, have been observed, and $\Sigma 3010$, where a third component has been observed for the first time. There are also several variations of distance and position angle noted, and new values given to them, e.g. in $\Sigma 2708$ the measures made by Mr. Espin vary considerably from those made by the discoverer of this system, Prof. Hall, but this discrepancy is accounted for by a movement of 0".26 towards 137° 7' which has been observed at Wolsingham. In regard to θ Persei ($\Sigma 296$) it is stated that the proper motion during the last 116 years has been perfectly rectilinear, all the observations being well represented by

$$\Delta = 16''.363 + 0''.029 (t - 1866.0). \\ T = 297''.162 + 0''.075 (t - 1866.0).$$

It has been observed that $\Sigma 1321$ is a similar system to 61 Cygni, P.M., the two components A and B both being of a reddish-yellow colour, whilst a third component, too faint to measure, was discovered on January 22, 1901.

LIGHT OF THE GALAXY AND BRIGHT STARS.—In No. 3803 of the *Astronomische Nachrichten*, Mr. C. Easton gives the results of his researches in comparing the light of the Galaxy to that of the comparatively bright stars of the Milky Way of the Northern Hemisphere.

Mr. Easton divided the galactic zone between -18° galactic latitude and $+18^\circ$ galactic latitude into 108 rectangles, and then, by an ingenious method, compared the light emitted from the area of each rectangle with the light emitted by the stars of the Northern Milky Way. The results show that there is a correlation and parallelism between the distribution of the galactic light and the stars of Argelander. On this basis Mr. Easton deduces that the stars in general may not simply be isolated units, but they may all belong to such agglomerations as we believe make up the Milky Way, the only real difference being in their relative distances from us; he suggests that the apparently crowded parts of the heavens, such as occur in the region of Cygnus, are parts where we get two such agglomerations at different distances, overlapping at the edges, and supports this theory by noting the fact that in such regions, both the galactic light and the brighter stars increase in density together.

PERIODICITY OF VOLCANIC ERUPTIONS AND EARTHQUAKES.—*Circular* No. 49 of the Wolsingham Observations contains a summary, by the Rev. T. E. Espin, of the results obtained by arranging and charting the data which he has collected in regard to the times of volcanic eruptions and earthquakes.

These results point to a period of between eight and nine years in the phenomena of which Mr. Espin has received the records.

This period agrees with the period of revolution of the moon's perigee, and further investigation indicates that the greatest volcanic activity takes place when the perigee occurs at its maximum northerly declination.

MINOR PLANETS.—Prof. Max Wolf records the observations, during July, of six minor planets, giving their R.A., declination and magnitude. Amongst them is a new minor planet 1902 JL, the position of which on July 9, 1902, at 12h. 13.7m. (Heidelberg mean time), was R.A. = 20h. 25.9m., Decl. = $-19^\circ 58'$, and the daily movement of which is $-0m. 8', -6'$ (*Astronomische Nachrichten*, No. 3803).

PHARMACOLOGY AT THE BRITISH MEDICAL ASSOCIATION.

THE section of pharmacology at the British Medical Association at Manchester this year was distinctly active, and many interesting discussions were held and papers read. The first day's discussion was devoted to a subject of great practical value to physicians, viz. the unexpected and undesired effects of medicines. Sir Lauder Brunton introduced the discussion

and his paper was full of interest. He treated at length the various factors which tend to render medicines either ineffective or productive of unusual effects. Speaking of tolerance, he instanced a case in which as much as 24 grains of morphine was used by a patient as a hypodermic injection, the ordinary dose being one-third of a grain. Taking arsenic as an example, he showed how the form in which this was given greatly influenced the results produced by it. The influence of certain remedies in producing skin rashes, especially those of the antipyrin series, was also referred to, and finally the occasionally extraordinary effects of some of the antitoxin sera; especially in this connection antistreptococcic serum was referred to as having in a few minutes produced in a patient an almost universal swelling of the subcutaneous tissues (general cedema). The varying effects of opium were, according to the lecturer, most probably to be explained by the inconstant chemical composition of this substance and its preparations.

Subsequently several papers were read. One which aroused great interest was communicated by Prof. Liebreich, of Berlin, upon the therapeutic value of alkaline waters of the Vichy type. The lecturer refused to believe that waters artificially made from the data of chemical analysis were of the same therapeutic value as the naturally occurring waters. Especially in this connection was the presence in natural waters of a substance of colloidal nature, known as glairin, of importance. In continuation, the lecturer indicated the special conditions for which Vichy waters were to be recommended. In the discussion which ensued, Prof. Tunncliffe drew attention to the work of Nageli, Locke and others upon the physiological action of chemically unrecognisable quantities of certain substances, especially, for instance, copper, and thought that for this reason the chemical analysis of natural waters afforded, although perhaps the best available, nevertheless not entirely trustworthy data for the artificial manufacture of medicinal waters. Papers were subsequently read by Prof. Marshall, upon the action of heroine and dionine upon the circulation, and by Dr. Dixon, upon the question of injectable purgatives.

An interesting paper upon synthetic purgatives was communicated by Prof. Tunncliffe. It appears from recent researches into the chemistry of the vegetable purgatives, especially of the rhubarb group, that the active purgative group of these substances is an anthraquinone derivative. Starting from this fact, certain artificial anthraquinone derivatives have been made in the laboratory, and one anthrapurpurin acetate has been introduced into therapeutics as a purgative. This substance is very interesting and marks a decided advance in pharmacology, since it must be regarded as the first synthetic vegetable purgative. According to Prof. Tunncliffe, however, the phthaleins exert a purgative action, and have certain advantages over both the natural purgatives and also the artificially prepared anthraquinone derivatives. The substance of especial interest in this connection is the chemical indicator phenolphthalein, a dihydroxyphthalophenone. This substance is now to be introduced under the name purgen, and the lecturer gave an account of the results of its administration as a purgative in 1000 cases.

On Thursday the section was devoted to a discussion upon the therapeutic value of arsenic. The discussion was introduced by Dr. Ralph Stockman. The author gave the result of certain observations he had made upon the action of arsenic upon the bone marrow. These researches included microscopical examinations of the bone marrow of patients who had died in the Manchester beer-poisoning epidemic. The discussion was followed by a paper by Prof. Liebreich upon the therapeutic value of cantharidin. In this paper the author discussed the rôle played by the capillaries in the absorption and elimination of poisons. He ascribed to each capillary area a specific irritability. Dr. Pope subsequently read a paper upon arsenic in the treatment of chorea.

Friday was occupied by a discussion on the treatment of diphtheria. Subsequently several papers were read of considerable pharmacological interest.

In reviewing the proceedings of the section we may certainly say that it evinced a healthy activity; the material to be dealt with was in excess of the available time. The meetings were well attended by pharmacologists from England, Scotland, Ireland and Wales, and it is certainly to be expected that they will perform the true function of such assemblies and act as a healthy stimulant to further research work in this important subject.